

## UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE <b>February 2000</b>	
BUDGET ACTIVITY <b>07 - Operational System Development</b>				PE NUMBER AND TITLE <b>0305144F Titan Space Launch Vehicles</b>				PROJECT <b>674135</b>	
COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
674135 Titan II/IV	69,823	44,777	25,815	27,065	0	0	0	0	3,075,067
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0

(U) **A. Mission Description**

National security requirements dictate a continuing, highly reliable means of placing critical DoD satellites into required orbits. The Titan IV program provides the capability to launch the largest of these satellites into near-earth or geosynchronous orbits from either the east or west coast launch facilities. Titan IV is used to launch Air Force, National Reconnaissance Office, and NASA payloads. This program provides several different configurations of the Titan IV [No Upper Stage (NUS), Inertial Upper Stage (IUS), and Centaur]. In addition, the Titan IV program has developed a new vehicle configuration, the Titan IVB, with solid rocket motor upgrade (SRMU), new avionics and ground support equipment to meet reliability and increased performance requirements. This program provides continuing integration support to the payload community as well as continuing engineering support to maintain system characterization and reliability.

Since FY94, this program element also included funding for sustaining engineering, payload integration, and government costs for the Titan II space launch vehicle. In FY96, program office support was moved to procurement funding. Major RDT&E activities are static test firing of the requalified Titan IV SRMU in 3QFY00, and non-recurring integration for Milstar satellites. Remaining activities are maintaining sustaining engineering and anomaly resolution capability through the end of the program.

Beginning in FY00, the Inertial Upper Stages Program (PE 35138F) is combined into the Titan program and provides consolidated acquisition of the IUS to support the launch of Defense Support Program (DSP) satellites. IUS is an upper stage on the Titan IV (can be modified for Shuttle) and delivers the DSP satellite to the required orbit. The RDT&E program continuously evaluates and improves upper stage reliability, cost effectiveness, and responsiveness; supports redesign of aging equipment and spares which are no longer manufactured or available; investigates flight anomalies; and conducts small studies to assist in defining future upper stages.

(U) **FY 1999 (\$ in Thousands)**

(U) \$43,006	Continued Solid Rocket Motor Upgrade (SRMU) requalification
(U) \$19,727	Continued integration for Milstar
(U) \$2,580	Titan Hardware Redesign and Obsolescence
(U) \$4,510	Air Force Research Lab (Phillips) support to SRMU Requalification Project
(U) \$69,823	Total

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0305144F Titan Space Launch Vehicles

674135

(U) **A. Mission Description Continued**(U) FY 2000 (\$ in Thousands)

(U)	\$16,293	Completed Solid Rocket Motor Upgrade (SRMU) requalification
(U)	\$24,570	Continue integration for Milstar
(U)	\$1,698	Titan Hardware Redesign and Obsolescence
(U)	\$2,116	Air Force Research Lab (Phillips) support to SRMU Requalification Project
(U)	\$100	Inertial Upper Stage Study and design corrective actions for potential anomalies and obsolete items
(U)	\$44,777	Total

(U) FY 2001 (\$ in Thousands)

(U)	\$25,752	Continue integration for Milstar
(U)	\$63	Inertial Upper Stage Study and design corrective actions for potential anomalies and obsolete items
(U)	\$25,815	Total

(U) **B. Budget Activity Justification**

This PE is in Budget Activity 7, Operational Systems Development, because Titan II, Titan IV and the Inertial Upper Stage are in production and are operational vehicles. Major Titan IV efforts remaining are SRMU requalification and MILSTAR integration.

(U) **C. Program Change Summary (\$ in Thousands)**

	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Total Cost</u>
(U) Previous President's Budget (FY 2000 PBR)	77,176	45,379	26,062	3,083,511
(U) Appropriated Value	77,443	45,379		
(U) Adjustments to Appropriated Value				
a. Congressional/General Reductions	-267	-3		
b. Small Business Innovative Research	-2,465			
c. Omnibus or Other Above Threshold Reprogram		-246		
d. Below Threshold Reprogram	-4,497			
e. Rescissions	-391	-353		
f. Other				
(U) Adjustments to Budget Years Since FY 2000 PBR			-247	
(U) Current Budget Submit/FY 2001 PBR	69,823	44,777	25,815	3,075,067

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**07 - Operational System Development****0305144F Titan Space Launch Vehicles****674135**(U) **C. Program Change Summary (\$ in Thousands) Continued**(U) **Significant Program Changes:**

FY99 funding was reprogrammed to higher Air Force priorities. DSP-22 delayed from Jul 02 to Oct 02.

(U) **D. Other Program Funding Summary (\$ in Thousands)**

	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Other APPN	0	0	0	0	0	0	0	0	
(U) Missile Procurement, Budget Activity 5, Other Support (P-1 27)	535,612	429,260	469,720	370,450	51,433	28,126	35,864	0	6,853,275

(U) **E. Acquisition Strategy**

The program has implemented a revised acquisition strategy for the 39-vehicle program. During FY1996, Titan IV transitioned from the old '85-C-0019' development/production and payload integration contract to new contracts designed to improve cost accountability, correct contract discrepancies, and establish an overall programmatic view for the effort to complete the program. The new contracts combine Titan II and Titan IV production, storage, pad maintenance and deactivation, launch operations, anomaly resolution, development and hardware requalification, payload integration, and program studies to provide the greatest potential for cost savings by maximizing use of resources and eliminating duplicative processes.

(U) **F. Schedule Profile**

	<u>FY 1999</u>				<u>FY 2000</u>				<u>FY 2001</u>			
	1	2	3	4	1	2	3	4	1	2	3	4
(U) Assess Titan IVA-20 mishap	*											
(U) Complete Titan IVA-20 Return to Flight Activities			*									
(U) Begin assessment of Titan IV B-27 and B-32 mishaps			*									
(U) Complete Titan IV B-27 and B-32 Return to Flight Activities					*							
(U) Test firing of SRMU for requalification							X					
(U) Milstar launches (Milstar 6 in May 02)			*					X			X	
(U) Last Titan Launch (DSP-22 in Oct 02)												
*completed event      X planned event												

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2000				
BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT			
07 - Operational System Development				0305144F Titan Space Launch Vehicles				674135			
(U) A. Project Cost Breakdown (\$ in Thousands)											
				FY 1999		FY 2000		FY 2001			
(U) Titan IV Contract Costs R&D (96-C-0035)				43,006		16,293		0			
(U) Contract Costs Unified Payload Integration (98-C-0005)				19,727		24,570		25,752			
(U) Titan Hardware Redesign & Obsolescence				2,580		1,698		0			
(U) Inertial Upper Stage Study & Design Changes				0		100		63			
(U) Facility Support				4,510		2,116		0			
(U) Total				69,823		44,777		25,815			
(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)											
(U) Performing Organizations:											
<u>Contractor or</u>		<u>Contract</u>									
<u>Government</u>		<u>Method/Type</u>		<u>Award or</u>		<u>Performing</u>		<u>Project</u>			
<u>Performing</u>		<u>or Funding</u>		<u>Obligation</u>		<u>Activity</u>		<u>Office</u>			
<u>Activity</u>		<u>Vehicle</u>		<u>Date</u>		<u>EAC</u>		<u>EAC</u>			
<u>Product Development Organizations</u>											
LMC 85-C-0019		SS/FPIF		1QFY85		11,203,100		11,203,100		2,042,016	
LMC 85-C-0085*		SS/FPIF		1QFY85		678,715		678,715		72,504	
LMC 92-C-0028*		SS/CPAF		3QFY92		515,251		515,251		93,428	
LMC 96-C-0035		SS/CPAF		3QFY96		259,690		257,613		195,070	
LMC 98-C-0005		SS/CPAF		1QFY98		294,617		293,027		18,756	
Boeing		SS/CPAF		2QFY97		N/A		N/A		0	
Facilities		n/a		n/a						0	
Note: EAC are total contract values while funding values are AF funds only											
* Contract closed											
<u>Support and Management Organizations</u>											
Tecolote, SRS, TRW,						N/A		N/A		101,557	
Antioch										0	
Other Research & Dev.		Development				N/A		N/A		33,068	
Aerospace						N/A		N/A		188,367	
Other Prgm Supprt						N/A		N/A		162,821	
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<p>(U) <b><u>Performing Organizations Continued:</u></b>  <u>Test and Evaluation Organizations</u>  None</p> <p>(U) <b><u>Government Furnished Property:</u></b></p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; width: 20%;"><u>Item</u></th> <th style="text-align: left; width: 10%;"><u>Contract</u> <u>Method/Type</u></th> <th style="text-align: left; width: 10%;"><u>Award or</u> <u>or Funding</u></th> <th style="text-align: left; width: 10%;"><u>Obligation</u> <u>Vehicle</u></th> <th style="text-align: left; width: 10%;"><u>Delivery</u> <u>Date</u></th> <th style="text-align: right; width: 10%;"><u>Total Prior</u> <u>to FY 1999</u></th> <th style="text-align: right; width: 10%;"><u>Budget</u> <u>FY 1999</u></th> <th style="text-align: right; width: 10%;"><u>Budget</u> <u>FY 2000</u></th> <th style="text-align: right; width: 10%;"><u>Budget</u> <u>FY 2001</u></th> <th style="text-align: right; width: 10%;"><u>Budget to</u> <u>Complete</u></th> <th style="text-align: right; width: 10%;"><u>Total</u> <u>Program</u></th> </tr> </thead> <tbody> <tr> <td colspan="11" style="padding-left: 20px;"><u>Product Development Property</u></td> </tr> <tr> <td colspan="11" style="padding-left: 20px;">None</td> </tr> <tr> <td colspan="11" style="padding-left: 20px;"><u>Support and Management Property</u></td> </tr> <tr> <td colspan="11" style="padding-left: 20px;">None</td> </tr> <tr> <td colspan="11" style="padding-left: 20px;"><u>Test and Evaluation Property</u></td> </tr> <tr> <td colspan="11" style="padding-left: 20px;">None</td> </tr> <tr> <td colspan="5"></td> <td style="text-align: right;"><u>Total Prior</u></td> <td style="text-align: right;"><u>Budget</u></td> <td style="text-align: right;"><u>Budget</u></td> <td style="text-align: right;"><u>Budget</u></td> <td style="text-align: right;"><u>Budget to</u></td> <td style="text-align: right;"><u>Total</u></td> </tr> <tr> <td colspan="5"></td> <td style="text-align: right;"><u>to FY 1999</u></td> <td style="text-align: right;"><u>FY 1999</u></td> <td style="text-align: right;"><u>FY 2000</u></td> <td style="text-align: right;"><u>FY 2001</u></td> <td style="text-align: right;"><u>Complete</u></td> <td style="text-align: right;"><u>Program</u></td> </tr> <tr> <td colspan="5"><u>Subtotals</u></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td colspan="5">Subtotal Product Development</td> <td style="text-align: right;">2,421,774</td> <td style="text-align: right;">69,823</td> <td style="text-align: right;">44,777</td> <td style="text-align: right;">25,815</td> <td style="text-align: right;">27,065</td> <td style="text-align: right;">2,589,254</td> </tr> <tr> <td colspan="5">Subtotal Support and Management</td> <td style="text-align: right;">485,813</td> <td></td> <td></td> <td></td> <td style="text-align: right;">0</td> <td style="text-align: right;">485,813</td> </tr> <tr> <td colspan="5">Subtotal Test and Evaluation</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td colspan="5">Total Project</td> <td style="text-align: right;">2,907,587</td> <td style="text-align: right;">69,823</td> <td style="text-align: right;">44,777</td> <td style="text-align: right;">25,815</td> <td style="text-align: right;">27,065</td> <td style="text-align: right;">3,075,067</td> </tr> </tbody> </table>								<u>Item</u>	<u>Contract</u> <u>Method/Type</u>	<u>Award or</u> <u>or Funding</u>	<u>Obligation</u> <u>Vehicle</u>	<u>Delivery</u> <u>Date</u>	<u>Total Prior</u> <u>to FY 1999</u>	<u>Budget</u> <u>FY 1999</u>	<u>Budget</u> <u>FY 2000</u>	<u>Budget</u> <u>FY 2001</u>	<u>Budget to</u> <u>Complete</u>	<u>Total</u> <u>Program</u>	<u>Product Development Property</u>											None											<u>Support and Management Property</u>											None											<u>Test and Evaluation Property</u>											None																<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>						<u>to FY 1999</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Complete</u>	<u>Program</u>	<u>Subtotals</u>											Subtotal Product Development					2,421,774	69,823	44,777	25,815	27,065	2,589,254	Subtotal Support and Management					485,813				0	485,813	Subtotal Test and Evaluation											Total Project					2,907,587	69,823	44,777	25,815	27,065	3,075,067
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